



# Excel 3: Linking, PivotTables, vLookup, & Macros Class Guide

Instructor: Susan Jerger

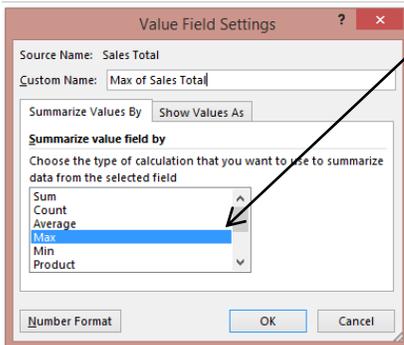
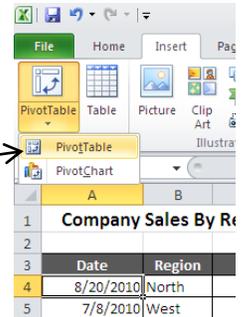
## Part 1: PivotTables

### 1.1 PivotTable Basics

**PivotTable** = A feature that enables you to summarize and analyze data in lists and tables. Pivot tables are called such because you can quickly rearrange the position of pivot table fields to give you a different view of the table (from <http://www.cs.rtu.lv/PharePub/Microsoft%20Access%2097%20Quick%20Reference/htm/ch09.htm>).

**Exercise 1:** Use the *PivotTableData* worksheet in the *Excel3ClassSpreadsheets* workbook

- Place the cell pointer somewhere in the sales table.
- Click on **Insert** on the Ribbon and then choose **PivotTable** → **PivotTable**.
- The Create PivotTable window pops up. Verify that the Range is correct and click **OK** and you will be taken to a new worksheet for your PivotTable.
- The PivotTable Field List should appear on the right. Choose **Region** (as Rows) and **Sales Total** (as Values). Sales Totals may default to Count. Should this happen, in the Values box, left click on Count of Sales. Then choose **Value Field Settings**. Click on **Sum** and **OK**.
- Left click on **Sum of Sales** in the bottom right. Click on **Value Field Settings** and then **Number Format** at the bottom of that box. Format this field as Currency and do **OK** twice to return.



- Take out **Region** and add in **Salesperson**. Change value to the **Max of Sales Total**. If you ever click off of the PivotTable, you can always get the PivotTable Tools tabs to appear by clicking back on the table.
- If you update data in your data range, you may need to **Refresh** your PivotTable by clicking on **Refresh** on the **PivotTable Tools** → **Options** tab.

**NOTE:** Consider making your PivotTable data into a “Table” [highlight data area including header row → click **Insert** tab → **Table** → **OK**] in case you add additional rows of data later on.

## Part 2: True Tables

### 2.1 Format as Table

To make life easier you can official mark you table as a table in Excel. This will help down the road if you add in new rows, delete columns, etc...you won't have to worry as much about changing cell references.

**Exercise 2:** Use the *PivotTableData* worksheet

- Click somewhere between Cell A3 and D68.
- On the Home tab, click **Format as Table**.
- Choose a color scheme and then verify that your entire table area is selected. Click **OK**.

## Part 3: vLOOKUP Function

### 3.1 vLOOKUP

The “v” in vLOOKUP stands for vertical. You can use this function to look up a value in a predefined range and return a corresponding value. Here is the syntax:

**=vlookup(lookup\_value,table\_array,col\_index\_num,[range\_lookup])**

From <http://office.microsoft.com/en-us/excel-help/vlookup-function-HP010343011.aspx>:

**lookup\_value** - Required. The value to search in the first column of the table or range. The lookup\_value argument can be a value or a reference. If the value you supply for the lookup\_value argument is smaller than the smallest value in the first column of the table\_array argument, VLOOKUP returns the #N/A error value.

**table\_array** - Required. The range of cells that contains the data. You can use a reference to a range (for example, A2:D8), or a range name. The values in the first column of table\_array are the values searched by lookup\_value. These values can be text, numbers, or logical values. Uppercase and lowercase text are equivalent.

**col\_index\_num** - Required. The column number in the table\_array argument from which the matching value must be returned. A col\_index\_num argument of 1 returns the value in the first column in table\_array; a col\_index\_num of 2 returns the value in the second column in table\_array, and so on.

**range\_lookup** - Optional. A logical value that specifies whether you want VLOOKUP to find an exact match (FALSE) or an approximate match (TRUE):

If range\_lookup is either TRUE or is omitted, an exact or approximate match is returned. If an exact match is not found, the next largest value that is less than lookup\_value is returned. This works best if values are in ascending order.

**Exercise 3:** *On the vLookup spreadsheet in the Excel3ClassSpreadsheets workbook...*

- Go to **B3** and use the =max() function to determine the maximum share price (cells A7-A42)
  - Adjust formatting to a number with 5 decimal places.
- Go to **B4** and use the vlookup function to return the maximum share price's date:  
     **=vlookup(B3,A7:B42,2,FALSE)**
- Format **B4** for short date if it's not already set that way.

**Exercise 4:** *Still on the vLookup spreadsheet...*

Say you don't really care about having the maximum price listed at the top...you only care about seeing the max price DATE. How can you get rid of row 3? *Hint: You can nest functions inside of each other but only use 1 “=”.*

**SPOILER ALERT!** *(with the old Row 3 cleared)*

=vlookup(max(a7:a42),A7:B42,2,FALSE)

NOTE: if your data is set-up horizontally you can use the HLOOKUP function.

## Part 4: Name That Cell/Those Cells

### 4.1 Naming

You can name a cell or a group of cells in your spreadsheet which can facilitate using functions.

Exercise 5: On the vLookup spreadsheet...

- Highlight A7 to A42.
- Go to the Name box (to the left of the Formula Bar) and type **SharePrices**.
- Now change the function reference for A7:A42 to **SharePrices**.

Not sure what's been named on a spreadsheet? You can see on the named areas by going to the **Formulas** tab and clicking on **Name Manager**.

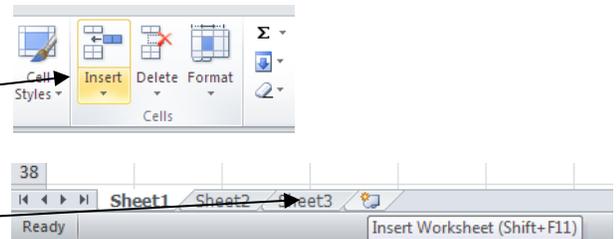
NOTE: Keep in mind you can also officially name Tables! (highlight range, Insert tab→Table)

## Part 5: Manipulating Sheets

### 5.1 Inserting, Renaming, and Linking

#### Insert a Sheet

- Click on **Insert**→**Insert Sheet** (you can click and drag worksheets into whatever order you prefer).
- OR click on the Insert Sheet button near the tabs at the bottom



#### Renaming Sheets

You can change the generic sheet names “Sheet1, Sheet2, etc.” to something more meaningful:

- *Right-clicking* on the current sheet name.
- Select **Rename**.
- Type in the new name and hit **Enter**.



#### Moving Sheets

You can easily rearrange your sheets by clicking & dragging the sheet tab to the desired location

#### Link Sheets

It can be helpful to connect different sheets in order to perform calculations or compare data

- Click on the blank cell you want to link.
- Type = and click on the worksheet that has the cell you want to copy.
- Click on the cell you want to link and press **Enter**.

#### Toggle Between Sheets

Since you can have numerous sheets it can sometimes be hard to view the tabs all at once or just to get to the next one in line. You can toggle using the keyboard shortcuts: **CTRL+Page Up** and **CTRL+Page Down**.

Exercise 6: Open the **Salesfor2008.xlsx** workbook file for this exercise.

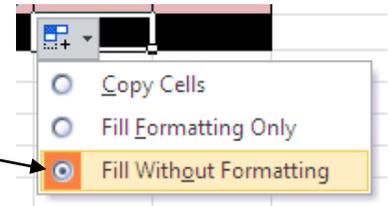
- Insert a new worksheet and rename it **1<sup>st</sup> Quarter Sales**
- Reorder the worksheets so that they are in chronological order but with **1<sup>st</sup> Quarter Sales** first.
- Create the table below on the new sheet:

Greenwood Public Library

	A	B	C	D	E
1	<b>1st Quarter Sales</b>				
2					
3		<b>January</b>	<b>February</b>	<b>March</b>	<b>Total</b>
4	Blue				
5	Brown				
6	Green				
7	Red				
8	<b>Total</b>				

- Link the sales figures for each month into the correct cell on the 1<sup>st</sup> Quarter Sales sheet.

For instance: **1.** Click on 1<sup>st</sup> Quarter Sales' cell B4 and type =. Go to January's sheet and click on Cell B4 and press Enter. Do Autofill to copy and paste the linking formula for the other colors (use the Autofill dropdown arrow to choose **Fill Without Formatting**).



**2.** Click on 1<sup>st</sup> Quarter Sales' cell C4 and type =. Go to February's sheet and click on cell B4 and press Enter.

- Use **AutoSum** to tally all the color totals and all the monthly totals for the quarter. When you're all finished, it should look something like this:

<b>1st Quarter Sales</b>				
	<b>January</b>	<b>February</b>	<b>March</b>	<b>Total</b>
Blue	\$ 1,999.00	\$ 5,678.00	\$ 5,699.00	<b>\$ 13,376.00</b>
Brown	\$ 567.00	\$ 34.00	\$ 34.00	<b>\$ 635.00</b>
Green	\$ 2,467.00	\$ 5,788.00	\$ 5,788.00	<b>\$ 14,043.00</b>
Red	\$ 67.00	\$ 67.00	\$ 134.00	<b>\$ 268.00</b>
<b>Total</b>	<b>\$ 5,100.00</b>	<b>\$ 11,567.00</b>	<b>\$ 11,655.00</b>	<b>\$ 28,322.00</b>

## Part 6: Find & Replace Almost Anything

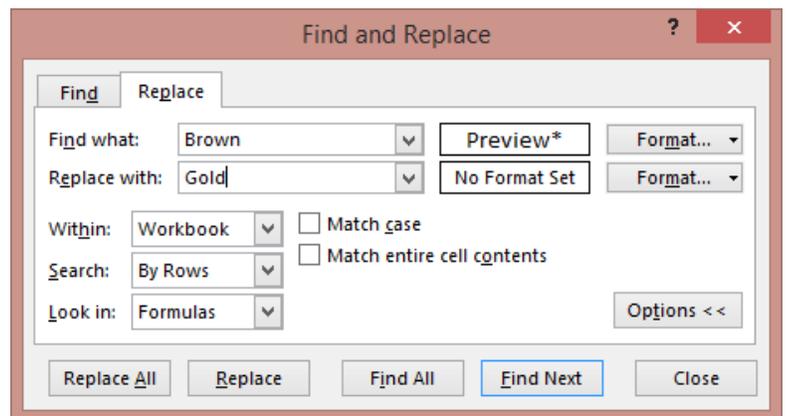
### 6.1 Find and Replace

You can pull up the Find and Replace window in Excel by typing **CTRL+F**. Can't remember where you typed something? Do a Find for it within a worksheet or the entire workbook. Need to replace some information? Do a Find and Replace (again within the worksheet or the entire workbook).

#### Exercise 7: Still in the Salesfor2008 file...

- Type **CTRL+F** and click on the **Replace** tab
- Find all the instances of the word Brown and Replace them with the word Gold.
- Save the file.

Note: You can also access Find and Replace from **Find & Select** on the right side of the Home tab.



## Part 7: Macros

### 7.1 Creating a Macro

A macro is a recording of tasks...a way to automate repetitive tasks in your workbook. Excel macros are written in Excel VBA (Visual Basic for Applications). For simple macros you don't actually need to know Excel VBA.

Since macros involve coding, a file with macros need to be saved as "Excel Macro-Enabled Workbook" for the macros to work later on.

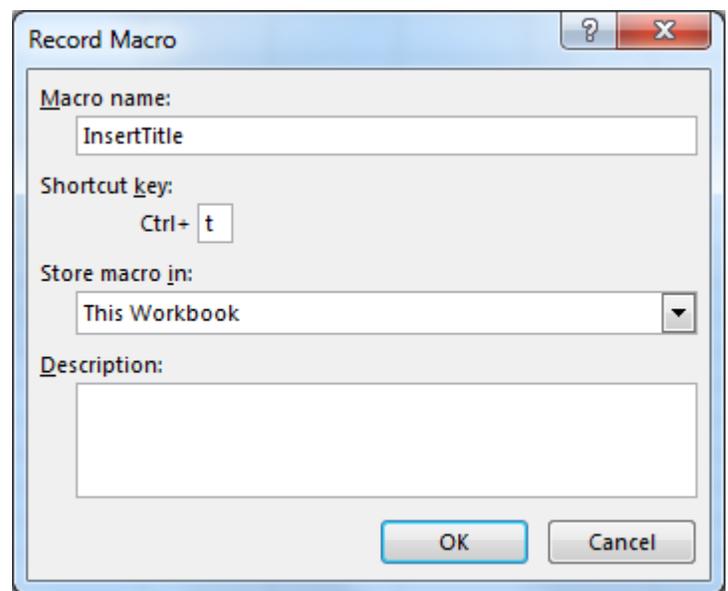
And, also since macros involve coding, they can be used to spread malicious codes so only run macros from people you trust.

The macro tools are on the Developer tab which doesn't always show up by default in Excel 2010. To see it, click on **File** → **Options** → **Customize Ribbon** → check **Developer** on the right. Click **OK**.

#### **Exercise 8:** *Still in the SalesFor2008 workbook*

We are going to create a macro to automatically put in a line of text at the top of a sheet.

- Go to the **1st Quarter Sales** sheet.
- Click the **Developer** tab.
- Click **Record Macro**. On the Record Macro window, type in the name **InsertTitle**. Make "t" the shortcut key (you are not required to insert a shortcut).
- Click **OK**.
- *Right-click* on **Row 1**.
- *Left-click* and choose **Insert**.
- Click on **cell A1** and type in the following:



Widgets r Us, Inc.

- Type **Enter**.
- Click on **Developer** tab if not already there.
- Click **Stop Recording**.
- Run this macro on the other sheets in the workbook using the keyboard shortcut or by going to the **Developer** tab, click **Macros**, choose **InsertTitle**, and click **Run**.
- Do **Save As** and save this file as an Excel Macro-Enabled Workbook so the macro will work in the future.

## Part 8: Further Help

### 8.1 HELP!



Excel has a help feature that can aid you in refreshing your memory on certain tasks or by even learning new tasks. Help can be reached at by clicking the Question mark in the upper right hand corner. You will most likely be directed to Office.com's online help, but there is an offline version if needed.

## 8.2 Additional Help

Below are some websites that might be of help to you:

[www.greenwoodlibrary.us/computer-class](http://www.greenwoodlibrary.us/computer-class) - Lists all of the library's computer classes and includes the Excel guides and class spreadsheets.

[www.inspire.in.gov](http://www.inspire.in.gov) - Click on the Testing & Education button near the middle of the page (then click on Career Tools and then Basic Computer Skills—you will need to create a free account)

[www.gcflearnfree.org](http://www.gcflearnfree.org) - A great collection of tutorials on a wide array of subjects including Microsoft Excel 2007, 2010, and 2013.

[www.free-training-tutorial.com](http://www.free-training-tutorial.com)

<http://spreadsheets.about.com/>

[www.customguide.com/cheat-sheets/](http://www.customguide.com/cheat-sheets/) - Free cheat sheets for most Office programs.

[www.google.com/work/apps/business/products/sheets/](http://www.google.com/work/apps/business/products/sheets/) - You can use Google Sheets for free (after creating a Google account) to practice many of the Excel features we've used today.

You can also find help by searching for the function you want to use or the problem you're having using your favorite search engine.

## Thank you for coming!

Please fill out a Computer Class Survey before leaving.

<http://www.greenwoodlibrary.us/programming-survey>

(or go to [www.greenwoodlibrary.us](http://www.greenwoodlibrary.us) → Services & Programs → Computer Survey)

Instructor's Name: Susan    Class: Excel 3

\_\_\_\_\_ IF THERE'S EXTRA TIME! \_\_\_\_\_

## SumIf Function

SumIF is a function that allows you to test criteria before adding cells together.

### Exercise:

- Open **SumIfExercise** workbook.
- Turn the table of information into an “official” table and name it **Expenses**.
- Go to cell **B3**.
  - Type in the SumIf function:
   
**=sumif(C\$10:C\$25,A3,D\$10:D\$25)**
  
**or =sumif(Expenses[Category],A3,Expenses[Amount])**
- Use Autofill to calculate the expense categories.